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EXAMINER	
HIRL, JOSEPH P	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/629,387	BRILL, ERIC D.	
	Examiner	Art Unit	
	Joseph P. Hirl	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to an AMENDMENT entered September 27, 2004 for the patent application 10/629,387 filed on July 29, 2003.

2. The First Office Action of July 31, 2004 is fully incorporated into this Final Office Action by reference.

Status of Claims

3. Claims 1-20 are pending.

Obviousness Double-Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 6,684,201. Although the conflicting claims are not identical, they are not patentably distinct from each other because the narrow claim 6 of U.S. Patent 6,684,201 is a species of the Applicant's broad claim 1 (generic) (MPEP 2131.02) as evidenced by the respective claim language.

6. Claims 3, 8 and 18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 6,684,201. Although the conflicting claims are not identical, they are not patentably distinct from each other because the narrow claim 9 dependent on claim 4 of U.S. Patent 6,684,201 is a species of the Applicant's broad claims 3, 8, and 18 including the related independent claims (generic) (MPEP 2131.02) as evidenced by the respective claim language.

7. Claims 2 and 7 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent

No. 6,684,201. Although the conflicting claims are not identical, they are not patentably distinct from each other because the narrow claim 1 of U.S. Patent 6,684,201 is a species of the Applicant's broad claims 2 and 7 including the related independent claims (generic) (MPEP 2131.02) as evidenced by the respective claim language.

8. Claim 6 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,684,201. Although the conflicting claims are not identical, they are not patentably distinct from each other because the narrow claim 1 of U.S. Patent 6,684,201 is a species of the Applicant's broad claim 6 (generic) (MPEP 2131.02) as evidenced by the respective claim language. More specifically, the "wherein" of applicant's claim 6 is defined as part of "...a set of reduced regular expressions..." as noted by the applicant's specification at page 5, lines 16-19.

9. Claim 11 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 17 of U.S. Patent No. 6,684,201. Although the conflicting claims are not identical, they are not patentably distinct from each other because the narrow claim 17 of U.S. Patent 6,684,201 is a species of the Applicant's broad claim 11 (generic) (MPEP 2131.02) as evidenced by the respective claim language. More specifically, the ".. are included ...knowledge base is learned" of applicant's claim 11 is characterized by "... reduced regular expressions ..." as noted by the applicant's specification at page 5, lines 14-22.

10. Claim 13 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 17 of U.S. Patent No. 6,684,201.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the narrow claim 17 of U.S. Patent 6,684,201 is a species of the Applicant's broad claim 13 (generic) (MPEP 2131.02) as evidenced by the respective claim language. More specifically, the ".. applying ... of the reduced regular expressions ..." of applicant's claim 13 is characterized by "... reduced regular expressions ..." as noted by the applicant's specification at page 5, lines 14-22, including page 7, lines 7-8.

11. Claim 14 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 17 of U.S. Patent No. 6,684,201. Although the conflicting claims are not identical, they are not patentably distinct from each other because the narrow claim 17 of U.S. Patent 6,684,201 is a species of the Applicant's broad claim 14 (generic) (MPEP 2131.02) as evidenced by the respective claim language. More specifically, the ".. are included ... when the knowledge base is learned ..." of applicant's claim 14 is characterized by "... reduced regular expressions ..." as noted by the applicant's specification at page 5, lines 14-22.

12. Claim 16 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 23 of U.S. Patent No. 6,684,201. Although the conflicting claims are not identical, they are not patentably distinct from each other because the narrow claim 23 of U.S. Patent 6,684,201 is a species of the Applicant's broad claim 16 (generic) (MPEP 2131.02) as evidenced by the respective claim language.

13. Claim 17 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 22 of U.S. Patent No. 6,684,201. Although the conflicting claims are not identical, they are not patentably distinct from each other because the narrow claim 22 of U.S. Patent 6,684,201 is a species of the Applicant's broad claim 17 (generic) (MPEP 2131.02) as evidenced by the respective claim language. More specifically, the equivalency of RRE and VRRE is established in the specification at page 7, lines 7-8.

14. Claim 20 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 22 of U.S. Patent No. 6,684,201. Although the conflicting claims are not identical, they are not patentably distinct from each other because the narrow claim 22 of U.S. Patent 6,684,201 is a species of the Applicant's broad claim 22 (generic) (MPEP 2131.02) as evidenced by the respective claim language. More specifically, related characterization is established in the specification at page 5, lines 14-22.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Horiguchi et al (U. S. Patent 6,282,507, referred to as **Horiguchi**).

Claim 1

Horiguchi anticipates defining a set of reduced regular expressions for particular patterns in strings (**Horiguchi**, c 1, l 39-43); and learning, from a training set, a knowledge base that uses the reduced regular expressions to resolve ambiguity based upon the strings in which the ambiguity occurs, wherein the learning includes transformation sequence learning to create a set of rules that use the reduced regular expressions to resolve ambiguity based upon the strings in which the ambiguity occurs (**Horiguchi**, c 15, l 66-67; c 16, l 1-25; Examiner's Note (EN): the ordered list of utterance hypotheses represent rules produced by a transformation sequence learning).

Claims 2, 7

Horiguchi anticipates the set of reduced regular expressions are defined over a finite alphabet Σ, wherein the alphabet is a union of multiple sets of distinct classes (**Horiguchi**, c 14, l 36-55; EN: such as " multiple examples may be identified and combined 1114 to match an input because the matching and transfer procedure works recursively over parts of the shallow syntactic input structure).

Claims 3, 8, 18

Horiguchi anticipates the training set comprises a labeled corpus (**Horiguchi**, c 22, l 53-62).

Claim 4

Horiguchi anticipates the set of reduced regular expressions specify types of patterns that are allowed to be explored when learning from the training set (**Horiguchi**, c 16, l 13-18).

Claims 5, 10, 12, 15

Horiguchi anticipates the learning includes applying a set of very reduced regular expressions that are a proper subset of the reduced regular expressions (**Horiguchi**, c 14, l 36-55).

Claim 6

Horiguchi anticipates defining a set of reduced regular expressions for particular patterns in strings (**Horiguchi**, c 1, l 39-43); and learning, from a training set, a knowledge base that uses the reduced regular expressions to resolve ambiguity based upon the strings in which the ambiguity occurs, wherein the set of reduced regular expressions specify types of patterns that are allowed to be explored when learning from the training set (**Horiguchi**, c 15, l 66-67; c 16, l 1-25; EN: hypothesis reduces ambiguity).

Claim 9

Horiguchi anticipates wherein the learning comprises transformation sequence learning to create a set of rules that use the reduced regular expressions to resolve ambiguity based upon the strings in which the ambiguity occurs (**Horiguchi**, c 15, l 66-67; c 16, l 1-25).

Claim 11

Horiguchi anticipates receiving a string with an ambiguity site (**Horiguchi**, c 31, claim 27); applying reduced regular expressions to describe a pattern in the string (**Horiguchi**, c 31, claim 27), wherein the reduced regular expressions: are included in a knowledge base that is learned from a training set (**Horiguchi**, c 31, claim 27); and specify types of patterns that are allowed to be explored when the knowledge base is learned (**Horiguchi**, c 31, claim 27); and selecting one of the reduced regular expressions to resolve the ambiguity site(**Horiguchi**, c 31, claim 27).

Claim 13

Horiguchi anticipates receiving a string with an ambiguity site (**Horiguchi**, c 31, claim 27); applying reduced regular expressions to describe a pattern in the string (**Horiguchi**, c 31, claim 27), wherein the applying includes applying a set of very reduced regular expressions that are a proper subset of the reduced regular expressions (**Horiguchi**, c 14, l 36-55); and selecting one of the reduced regular expressions to resolve the ambiguity site(**Horiguchi**, c 31, claim 27).

Claim 14

Horiguchi anticipates receiving a string with an ambiguity site (**Horiguchi**, c 31, claim 27); applying reduced regular expressions to describe a pattern in the string (**Horiguchi**, c 31, claim 27), wherein: the reduced regular expressions are included in a knowledge base that is learned from a training set (**Horiguchi**, c 31, claim 27); and the reduced regular expressions specify types of patterns that are allowed to be explored when the knowledge base is learned (**Horiguchi**, c 31, claim 27); and

selecting one of the reduced regular expressions to resolve the ambiguity site (**Horiguchi**, c 31, claim 27).

Claim 16

Horiguchi anticipates read a training set (**Horiguchi**, c 31, claim 27); construct a graph having a root node that contains a primary position set of the training set and multiple paths from the root node to secondary nodes that represents a reduced regular expression, the secondary node containing a secondary position set to which the reduced regular expression maps (**Horiguchi**, c 11, l 61-67; c12, l 1-17); score the secondary nodes to identify a particular secondary node (**Horiguchi**, c 15, l 10-18; EN: match cost is the score); and identify the reduced regular expression that maps the path from the root node to the particular secondary node (**Horiguchi**, c 11, l 61-67; c12, l 1-17).

Claim 17

Horiguchi anticipates a memory to store a training set (**Horiguchi**, c 31, claim 27); a processing unit (**Horiguchi**, c 31, claim 27); and a disambiguation trainer, executable on the processing unit, to define a set of reduced regular expressions for particular patterns in strings of the training set and learn a knowledge base that uses the reduced regular expressions to describe the strings wherein the reduced regular expressions specify types of patterns that are allowed to be explored when the knowledge base is learned from the training set (**Horiguchi**, c 31, claim 27; c 15, l 60-67; c 16, l 1-4; EN: specification at page 5, l 14-22 characterizes the equivalency of

reduced regular expressions unto itself which Horiguchi maps to the hypothesis concept).

Claim 19

Horiguchi anticipates the disambiguator trainer employs transformation sequence learning to create a set of rules that use the reduced regular expressions to describe the strings (**Horiguchi**, c 23, l 8-23).

Claim 20

Horiguchi anticipates a memory to store a knowledge base that uses reduced regular expressions to resolve ambiguity based upon strings in which the ambiguity occurs (**Horiguchi**, c 31, claim 27; c 32, claim 39), wherein the knowledge base is learned from a training set using the reduced regular expressions, the reduced regular expressions specify types of patterns that are allowed to be explored when the knowledge base is learned (**Horiguchi**, c 31, claim 27; EN: computer has a memory and with the stated processing, reduced regular expressions or hypothesis mature or are learned); a processing unit (**Horiguchi**, c 31, claim 27); and a disambiguator, executable on the processing unit, to receive a string with an ambiguity site and apply a reduced regular expression from the knowledge base that describes a pattern in the string to resolve the ambiguity site (**Horiguchi**, c 31, claim 27).

Response to Arguments

17. MPEP 602.05(a) requires that the applicant must appropriately label the copy of the oath or declaration with the application number of the continuation. The Examiner has retrieved the declaration and so labeled it. The objection is withdrawn.

18. The rejection of claims 1, 2, 3, 6-8, 11, 13, 14, 16, 17, 18 and 20 under obviousness double patenting remains.

19. Applicant's arguments filed on September 27, 2004 related to Claims 1-20 have been fully considered but are not persuasive.

In reference to Applicant's argument:

Claim I is directed to a computer-implemented method including "defining z a set of reduced regular expressions for particular patterns in strings" and 3 "learning, from a training set, a knowledge base that uses the reduced regular a expressions to resolve ambiguity based upon the strings in which the ambiguity s occurs, wherein the learning includes transformation sequence learning to create a 6 set of rules that use the reduced regular expressions to resolve ambiguity based upon the strings in which the ambiguity occurs". Horiguchi does not disclose, s teach or suggest these aspects.

The Office asserts Horiguchi at column one, lines 39-43 for teaching a set 10 of reduced regular expressions for particular patterns in strings, which is excerpted as follows:

> A typical language translation system functions by using natural language processing. Natural language processing is generally concerned with the attempt to recognize a large pattern or sentence by decomposing it into small subpatterns according to linguistic rules. Horiguchi. Col. 1. Lines 39-43.

As shown in the excerpted portion, Horiguchi merely describes "large patterns" and "small subpatterns", and does not disclose, teach or suggest reduced regular expressions as claimed in Claim

The Office asserts in the "Examination Considerations" section of the Office Action Dated July 13, 2004 that "Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure" and that limitations "appearing in the specification but not recited in the claims are not read into the claim". See Office Action Dated July 13, 2004, Page 12. However, it is respectfully submitted that terms of a claim carry "their ordinary meaning, unless it appears that the inventor used them differently." See Gargoyles Inc. v. United Stales 28 USPQ 2d 1715. 1716-17 (Fed. Cir. 1993). Further. it "is the use of the words in the context of the written description and customarily by those skilled in the relevant art that accurately reflects both the `ordinary' and the `customary' meaning of the terms in the claims". See MPEP 2111.01, citing Ferguson Beauregardl Logic Controls v. Mega Systems, 350 F.3d 1327, 1338, 69 USPQ2d 1001, 1009 (Fed. Cir. 2003). It is respectfully submitted that the Office's interpretation of regular expressions, , and consequently reduced regular expressions, does not reflect the ordinary meaning of the terms.

Beginning at page 9 of the subject Specification, regular expressions are described as descriptions of patterns, which are both conventional and well known to those of skill in the art. As noted on page 11 of the subject Specification, however, one problem with regular expressions is that they are far too expressive for learning machines to automatically learn. To overcome this problem, Applicant's disambiguation system may employ less expressive languages, such as "reduced regular expressions" (or RRE), and "very reduced regular expressions" is (ox VRRE). Reduced regular expressions are strictly less powerful than regular expressions, and the very reduced regular expressions are strictly less powerful than reduced regular expressions. Horiguchi does not disclose, teach or suggest reduced regular expressions or even mention the existence of different types of expressions. Although Horiguchi does mention decomposing "a large pattern or sentence" into "small subpattems according to linguistic rules", Horiguchi does 21 not disclose, teach or suggest a reduction in expressiveness of the patterns. Horiguchi, Col. 1, Lines 39-43.

Examiner's response:

Para 19 applies. Applicant has not provided a definition in the specification for regular expressions. Using Para 19 and a definition that is typical for the subject matter, regular expressions are patterns for information extraction. Hence, Horiguchi @ c 1, l 39-43 teaches regular expressions. Further since reduced regular expressions would follow a more specific finite alphabet that identify characters, punctuation and white space as an example, Horiguchi's large to small pattern would apply. Further, the claims do not use "means for" and therefore the lock in to the character of the specification has not been established. Claim 1 does not address "a deduction in expressiveness of the patterns." The First Office Action applies.

In reference to Applicant's argument:

The Office then asserts Horiguchi for disclosure of the previously described recitation of "learning" of Claim 1, the asserted portion of Horiguchi is excerpted as follows:

> Using this method, the system learns the types of things that the user says and improves system performance of the hypothesis construction component. The effect is that the correct hypothesis will be presented to the user as the most likely hypothesis more and more often as the user uses the device.
>
> FIG. 12 shows the hypothesis selection components of a speech translation system of an embodiment of the present invention. Operation begins with the receipt of a speech input 1201 at

> the acoustic speech recognition component 1202. The acoustic speech recognition component 1202 accesses and uses at least one word pronunciation dictionary 1222 and at least one acoustic model 1224 to generate at least one data structure 1204 encoding hypothesized words arid their information 1204 is used for utterance hypothesis construction 1206, wherein an ordered list of utterance hypotheses 1208 are produced. User selection-configuration 1210 then takes place, wherein a user selects the best utterance hypothesis 1210. User selection-configuration is accomplished through a user interface 1298. The user selection is used as an adaptation input 1226 to the speech translation system language models 1228. The best utterance hypothesis 1212 is used as an input to the translation component 1214 and the speech synthesis component 1216 of the speech translation system, which produce a translated speech output 1299. Horiguchi. Col. 1. Lines 39-43.

In making the rejection, the Office asserts that "the ordered list of utterance hypotheses represent rules produced by a transformation sequence learning" See (Office Action Dated July 13, 2004, Page 7. The Applicant respectfully disagrees.

As previously described. Horiguchi is directed to speech translation systems. The Horiguchi system receives as input natural spoken language in a source language. The system then generates multiple recognition hypotheses and chooses what it believes to be the best hypothesis. The system presents the best hypothesis to the user, along with the alternatives. The user can then select the desired hypothesis, which is then used to translate the input language to a target language. An example of this is shown in FIG. 13 of Horiguchi and the accompanying description, which is excerpted as follows:

> FIG. 13 is an illustration of one embodiment of a display screen. The best utterance hypothesis 1302 is displayed. In this case, the best utterance hypothesis is the sentence "I want to recognize speech." In addition to forming alternative utterance hypotheses and displaying the best utterance hypothesis, the present invention recognizes segments of the best utterance hypothesis that may have alternative hypotheses. These segments are highlighted, in this embodiment, to indicate to the user that the segment 1304 is one of a group of hypotheses. In one embodiment, if there are multiple segments that have alternative hypotheses the largest segment is chosen as the highlighted segment. Horiguchi, Col. 16, Lines 46-58.

Thus, each of the hypotheses is merely a best guess for a translation of a speech input for selection by the user. Nowhere in Horiguchi is a hypothesis described is having "a set of rules that use the reduced regular expressions to resolve ambiguity based upon the strings in which the ambiguity occurs" as claimed in Claim 1.

Examiner's response:

Para 19 applies. Applicant has admitted that the "system learns" by the above quote from Horiguchi. The reduced regular expressions are merely patterns. The claims are not "means for" locked.

In reference to Applicant's argument:

Beginning at page 13 of the subject Specification, an exemplary set of rules that use regularly reduced expression (RRE) is described. For instance, a learning machine may create a knowledge base that employs RREs and VRREs to describe virtually any given string in which a disambiguation site occurs. For example, the u learning machine can learn a rule for a "then/than" disambiguation site, such as:

Add evidence for the proper word being "then" if the string matches the pattern: X followed by zero or more tokens followed by a token that is not Y followed by Z followed by one or more tokens that are not Q followed by an R where X, Y, Z, Q and R are particular words or features (e.g. parts of speech).
Since the learning machine can learn much more expressive concepts than those learned by current state of the art techniques, it can much more precisely acquire the linguistic knowledge necessary to accurately disambiguate tokens based upon properties of the string context in which they appear. Accordingly, Horiguchi does not disclose, teach or suggest "a set of rules that use the reduced regular expressions to resolve ambiguity based upon the strings in which the ambiguity 9 occurs" as recited in Claim 1. (emphasis added).

Examiner's response:

Para 19 applies. Applicant has not tied the claims with a "means for" to the specification. First Office Action applies.

In reference to Applicant's argument:

Further, Horiguchi does not describe "transformation sequence learning" as recited in Claim 1. Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. W.L. Gore & Assocs. v. Garlock, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Further, "anticipation requires the presence in a single prior art is reference disclosure of each and every element of the claimed invention, arranged as in the claim." Lindemann Maschinenfabrik GmbH v. American Hoist Bt 17 Derrick Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added). Accordingly, because Horiguchi does not disclose, teach, suggest or even mention "transformation sequence learning", a prima facie case of anticipation has not been established.

Examiner's response:

Para 19 applies. Applicant has not tied the claims with a "means for" to the specification. Quotes above indicate that Horiguchi's process learns and applicant agrees. First Office Action applies.

In reference to Applicant's argument:

Claim 6 recites "wherein the set of reduced regular expressions specify s types of patterns that are allowed to be explored when learning from the training set". The Office asserts Horiguchi at column 15, lines 66-67 and Column 16 lines 1-25 for such disclosure, the portion of which is again excerpted as follows:

Using this method, the system learns the types of things that the user says and improves system performance of the hypothesis construction component. The effect is that the correct hypothesis will be presented to the user as the most likely hypothesis more and more often as the user uses the device.

> FIG. 12 shows the hypothesis selection components of a speech translation system of an embodiment of the present invention. Operation begins with the receipt of a speech input 1201 at the acoustic speech recognition component 1202. The acoustic speech recognition component 1202 accesses and uses at least one word pronunciation dictionary 1222 and at least one acoustic model 1224 to generate at least one data structure 1204 encoding hypothesized words and their corresponding positions and time. The data structure information 1204 is used for utterance hypothesis construction 1206, wherein an ordered list of utterance hypotheses 1208 are produced. User selection-configuration 1210 then takes place, wherein a user selects the best utterance hypothesis 1210. User selection-configuration is accomplished through a user interface 1298. The user selection is used as an adaptation input 1226 to the speech translation system language models 1228. The best utterance hypothesis 1212 is used as an input to the translation component 1214 and the speech synthesis component 1216 of the speech translation system, which produce a translated speech output 1299. Horiguchi, Col 15, Line 66 to Col_ 16, Line 25.

As shown in the above excerpted portion, Horiguchi does not even mention "types recited in Claim 6. Horiguchi does not show these claimed aspects nor address learning issues, Indeed, Horiguchi does not even describe learning as involving any pattern whatsoever. Rather, Horiguchi focuses on translation processes that presume arc already trained system.

As previously described in relation to Claim 1, Horiguchi is also silent as to 9 the claimed aspect of the reduced regular expressions. As such, Horiguchi offers 10 no discussion of describing patterns using reduced regular expressions as a way to enable machine-base learning. For these reasons, and the reasons previously '2 submitted, Claim 6 is allowable over Horiguchi. Applicant respectfully requests 13 that the §102 rejection of Claim 6 be withdrawn.

Examiner's response:

Para 19 applies. "Types of things" are "patterns." "Explored when learning" is "improved." "Learning the types of things that the user says" is the "training set." First Office Action applies.

In reference to Applicant's argument:

Claims 7-10 are dependent claims which directly depend from Claim 6. Accordingly, these claims are allowable based at least on this dependency, as well as for their own recited features which are not disclosed, taught or suggested by Horiguchi. For example, Claim 9 recites "wherein the learning comprises transformation sequence learning to create a set of rules that use the reduced regular expressions to resolve ambiguity based upon the strings in which the ambiguity occurs", which is not disclosed by Horiguchi as previously described in relation to Claim 1. Additionally. Claim 10 recites

"wherein the learning includes applying a set of very reduced regular expressions that are a proper subset of the reduced regular expressions", which is not disclosed by Horiguchi. As previously 4 described, Horiguchi does not even mention reduced regular expressions, and therefore cannot disclose, teach or suggest very reduced regular expressions as recited in Claim 10.

Examiner's response:

Para 19 applies. "Transformance sequence learning" is performed by Horiquchi when:

> Using this method, the system learns the types of things that the user says and improves system performance of the hypothesis construction component. The effect is that the correct hypothesis will be presented to the user as the most likely hypothesis more and more often as the user uses the device. (Horiguchi @ c 15, 66-67; c 16, l 1-45).

The rules follow Fig. 12. Hypothesis reduces ambiguity. Applicant has not used a "means for" to tie the specification to the claims.

In reference to Applicant's argument:

Claims 11 and 14 recite "the reduced regular expressions ... specify types of patterns that are allowed to be explored when the knowledge base is learned". The Office asserts Horiguchi at column 31, claim 31 for such disclosure, which is excerpted as follows:

> 27. A computer readable medium containing executable instructions which, when executed in a processing system, cause the system to perform a method for performing language translation, the method comprising: receiving an input that is representative of at least one word in a source language;
>
> generating at least one recognition hypothesis in the source language in response to the input;
>
> selecting a best hypothesis from the at least one recognition hypothesis in the source language;
>
> presenting the best hypothesis in the source language to a user;
>
> presenting alternatives to a portion of the best hypothesis in the source language to the user;
>
> receiving an indication of a choice of one of the alternatives from the user; and
>
> presenting a revised version of the best hypothesis including the alternative chosen to the user. Horiguchi. Col. 31, Claim 2 7.

As shown in the above excerpted claim, Horiguchi merely describes selection of a hypothesis by a user and presenting a revised version of the best hypothesis to the user. Horiguchi does not disclose, teach or suggest "wherein the reduced regular expressions ... specify types of patterns that are allowed to be explored when the knowledge base is learned". The referenced section does even mention learning or patterns. Accordingly, for at least this reason, Claim 11 is allowable 2 over Horiguchi and withdrawal of the rejection is respectfully requested.

Examiner's response:

Para 19 applies. Again, reduced regular expressions are merely patterns. Applicant has chosen not to lock the specification into the claims with a "means for". "Presenting the best hypothesis in the source language to a user" is a learning process that is explored by the "presenting." First Office Action Applies.

In reference to Applicant's argument:

Claim 12 is a dependent claim which directly depends from Claim 11. Claim 15 is a dependent claim which directly depends from Claim 14. Accordingly, these claims are allowable based at least on their respective dependencies, as well as for its own recited features which are not disclosed, taught or suggested by Horiguchi. For example, Claims 12 and 15 recite "wherein the applying includes applying a set of very reduced regular expressions that are a proper subset of the reduced regular expressions", which is not disclosed by Horiguchi as described in greater detail in relation to Claim 13.

Examiner's response:

Para 19 applies. Applicant has chosen not to lock the specification into the claims with a "means for". A fast match would be synonymous of a very reduced regular expression. First Office Action Applies.

In reference to Applicant's argument:

Claim 13 recites "applying reduced regular expression to describe a pattern in the string, wherein the applying includes applying a set of very reduced regular' expressions that are a proper subset of the reduced regular expressions", which is not disclosed, taught or suggested by Horiguchi. The Office asserts Horiguchi at column 14, lines 36-55, which is excerpted as follows:

> A matching and transfer is then performed, wherein an initial fast match 1108 is performed that quickly checks is compatibility of the input and the example database. This initial fast match 1108 eliminates the necessity of carrying out a time and space consuming detailed match for every example in the example database. A detailed or best match 1110 is performed as an optimization procedure over operations to insert, delete or join (match up) 1112 parts of the syntactic representation. This provides a flexible way to match that does not require all parts of the structure to be accounted for since insertions and deletions are possible. Using this approach, multiple examples may be identified and combined 1114 to match an input because the matching and transfer procedure works recursively over parts of the shallow syntactic input structure. The method described herein for matching and transfer is general in the sense that it does not depend

> on examples of any particular degree of linguistic specificity; it works with very general examples as well as with very specific examples that include a great deal of context on which the translation depends. Horiguchi, Col. 14, Lines 36-55.

As shown in the above excerpt, Horiguchi merely describes a "fast match" and a "detailed match". As previously described in relation to Claim 1, Horiguchi does not disclose, teach or suggest "reduced regular expressions". Accordingly, Horiguchi does not disclose, teach or suggest "a set of very reduced regular a expression that are a proper subset of the reduced regular expressions". Nowhere in Horiguchi is a reduction in expressiveness even mentioned.

Examiner's response:

Para 19 applies. Applicant has chosen not to lock the specification into the claims with a "means for". Again reduced regular expressions and very reduced regular expressions are merely patterns of differing configurations. Such is a "fast match" and a "detailed match."

In reference to Applicant's argument:

Claim 16 recites "construct a graph having a root node that contains a primary position set of the training set and multiple paths from the root node to secondary nodes that represents a reduced regular expression, the secondary node containing a secondary position set to which the reduced regular expression maps", "score the secondary nodes to identify a particular secondary node", and "identify the reduced regular expression that maps the path from the root node to the particular secondary node". Horiguchi does not disclose, teach or suggest these aspects.

Horiguchi does not describe reading, constructing and scoring as claimed. The Office argues that Horiguchi discloses receiving an input, generating one recognition hypothesis and selecting a best hypothesis is a learning or training process. Applicant disagrees, as there is no discussion in Horiguchi as to reading a training set, such as a properly tagged corpus. Further, Horiguchi fails to disclose, teach or suggest reduced regular expressions as described previously.

Moreover, Horiguchi fails to disclose constructing a graph having a root node that contains a primary position set of the training set and multiple paths a from the root node to secondary nodes that represents a reduced regular expression, the secondary node containing a secondary position set to which the reduced regular expression maps as claimed. The Office argues that this is shown in FIG. 6. The Applicant disagrees. FIG. 6 shows a tree structure of a parsed input sentence. The Office asserts that FIG. 6 is applicable because it is a graph, it has been formed, it has nodes, and it has a root node, and it has secondary positions or expressions. Applicant disagrees. Horiguchi does not describe learning or a training set. Therefore, Horiguchi does not describe constructing the graph from the training set. FIG. 6 does not disclose a graph with nodes that represent reduced regular expressions as a way to describe a string for learning purposes.

Horiguchi also fails to disclose "scor[ing] the secondary nodes to identify a particular secondary node". Even assuming for the sake of argument alone that a graph is shown, each and every claim element must be shown. Horiguchi does not address "scoring". As stated above, Horiguchi does not contain teaching or

suggestion for a graph with nodes to describe a string for learning purposes. Indeed, Horiguchi does not disclose learning as claimed.

Examiner's response:

Para 19 applies. Applicant has chosen not to lock the specification into the claims with a "means for". A tree is a graph with nodes and links. Noun phases and verb phrases are patterns of the reduced regular expression type. "Reading" would be synonymous with receiving an input; "constructing" would be assembly of a tree; and scoring would be "minimizing overall match cost". A "tagged corpus" is merely a training set for learning and may take many form such as "user feedback" (Horiguchi @ c 15, l 66-67; c 16, l 1-4. Again Para 19 applies and the input becomes the training set ... the parsing has learned from the input. As stated on p 10, l 8,9 of the First Office Action, "match cost is the score."

In reference to Applicant's argument:

Claims 17 and 20 recite "the reduced regular expressions specify types of patterns that are allowed to be explored when the knowledge base is learned". Horiguchi does not show these claimed aspects nor address learning issues. Further, Horiguchi does trot even describe learning as involving any type of pattern whatsoever. Horiguchi is also silent as to the claimed aspect of the reduced regular expressions.

Examiner's response:

Para 19 applies. Applicant agrees that RREs' are patterns and when one learns, one always explores "something" and Horiguchi @ claims 27, 29, 30, 31 and 32 describe a learning process involving patterns or hypothesis. Claim 32 stores the learned hypothesis. First Office Action applies.

In reference to Applicant's argument:

Claims 18-19 are dependent claims which directly depend from Claim 17. 8 Accordingly, these claims are allowable based at least on their respective dependencies, as well as for its own recited features which

are not disclosed, taught or suggested by Horiguchi. For example, Claim 19 recites "transformation sequence learning to create a set of rules that use the reduced regular expressions to describe the strings", which as previously described in relation to Claim I is not disclosed by Horiguchi.

Examiner's response:

Para 19 applies. "Transformation sequence learning" was addressed in the comments related to claims 7-10 above.

Examination Considerations

17. The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris,* 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, l 45-48; p 2100-9, c 1, l 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

18. Examiner's Notes are provided to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and spirit of compact prosecution. However, and

unless otherwise stated, the Examiner's Notes are not prior art but a link to prior art that one of ordinary skill in the art would find inherently appropriate.

19. Examiner's Opinion: Paras 17. and 18. apply. While there maybe merit in the specification, the claims are written in such a fashion that facilitates the Examiner to apply various prior art such as that of Horiguchi. The MPEP requires and the Examiner strongly encourages the applicant to reply to all the actions taken by the Examiner in a specific office action.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

21. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

22. Claims 1-20 are rejected.

Correspondence Information

Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner, Joseph P. Hirl, whose telephone number is (571) 272-3685. The Examiner can be reached on Monday – Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anthony Knight can be reached at (571) 272-3687. Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

or faxed to:

(703) 872-9306 (for formal communications intended for entry);

or faxed to:

(571) 273-3685 (for informal or draft communications with notation of "Proposed" or "Draft" for the desk of the Examiner).

Joseph P. Hirl

November 30, 2004

Anthony Knight
Supervisory Patent Examiner
Group 3600